

ZUZANA HOFMANOVÁ

Birth name Fajkošová
ORCID 0000-0003-1336-4455
WoS ResearcherID (Publons) M-6666-2019
E-mail zuzana.hofmanova@unifr.ch
Phone +420606107642 (EU) +41 77 457 37 91 (Switzerland)

A multidisciplinary researcher focusing on interaction of cultural and genetic variability, I am well-versed in wet-lab production of ancient and modern genetic data and now I am focusing on novel computational and statistical tools to infer parameters directly from raw genomes. I am particularly interested in questions related to cultural practices as an evolutionary mechanism of adaptation in human species and “invisible peoples” in history and prehistory, especially women, low-class individuals and less-studied ethnic groups.

Education history

Dr. rer. nat. in Anthropology *magna cum laude* 07/2012 - 12/2016
*Institute of Anthropology, Institute of Organismic and Molecular Evolution,
Johannes Gutenberg University, Mainz, Germany*
Doctoral Thesis: Palaeogenomic and biostatistical analysis of ancient DNA data from Mesolithic and Neolithic skeletal remains

Master's Degree in Anthropology and Human Genetics *summa cum laude* 2010 - 2012
Faculty of Science, Charles University, Prague, Czech Republic
Master Thesis: Population Structure of African Populations Inferred from Alu Insertions

Bachelor's Degree in Anthropology 2007 - 2010
Faculty of Science, Masaryk University, Brno, Czech Republic
Bachelor Thesis: Influence of Soil Composition on Conservation of Genetic Information in Skeletal Remains of Ancient Populations
Simultaneous study of Bachelor's Program in Archaeology at Faculty of Arts

Employment history: Full employment

Postdoctoral Researcher (PI: Daniel Wegmann) since 02/2017
Department of Biology, University of Fribourg, Fribourg, Switzerland
EMBO Fellowship Project: Characterizing the social revolution associated with the introduction of farming with ancient DNA

Early Stage Researcher (PI: Joachim Burger) 06/2012 - 06/2015
*Institute of Organismic and Molecular Evolution, Institute of Anthropology,
Johannes Gutenberg University, Mainz, Germany*
BEAN (Bridging the European and Anatolian Neolithic)
Marie Curie Initial Training Network (FP7, European Commission)

Employment history: Selected trainee experience

Research Secondment in Population Genomics (PI: Mathias Currat) <i>Laboratory of anthropology, genetics and peopling history, Department of Genetics and Evolution, University of Genève, Genève, Switzerland</i>	09/2014 - 12/2014
Research Trainee in Genetic Diversity Research Group (PI: Luísa Pereira) <i>Institute of Molecular Pathology and Immunology of the University of Porto, Porto, Portugal</i>	09/2011 - 01/2012
Research Trainee in Molecular Ecology Research Group (PI: Pavel Munclinger) <i>Department of Zoology, Faculty of Science, Charles University, Prague, Czech Republic</i>	11/2010 - 07/2011
Research Trainee in Laboratory of Archaeogenetics (PI: Viktor Černý) <i>Institute of Archaeology of the Academy of Sciences, Prague, Czech Republic</i>	09/2010 - 07/2012
Archaeological Excavation Worker, Field Co-supervisor, Laboratory Assistant <i>Těšetice-Kyjovice, Czech Republic</i> Field supervision and pedomicrochemical field detection of P and Fe residues during excavation seasons.	2009 - 2010

Teaching

Ancient DNA: A Time-machine to Study Evolution 3-day workshop with speakers (M. Slatkin, L. Orlando, A. Andres, M. Raghavan, G. Larson, J. Burger, L. Excoffier, D. Wegmann, Z. Hofmanová) and 1-day practicals <i>CUSO Doctoral Program in Ecology and Evolution</i> <i>Universities of Bern, Fribourg, Geneva, Lausanne and Neuchatel</i> Organiser of both events, Speaker during the workshop and Instructor at the hands-on training	since 2018
Bioinformatics <i>Bachelor program in Biochemistry, University of Fribourg, Fribourg, Switzerland</i> Teaching Population Genomics section, course organized by Dr. Laurent Falquet	since 2018
Population Genetics <i>Bachelor program in Biology, University of Fribourg, Fribourg, Switzerland</i> Teaching Assistant of Prof Daniel Wegmann	since 2017
Computer Skills for Biologists (Module 4.2: Palaeo-population genetics) <i>Master program in Anthropology, Johannes Gutenberg University, Mainz, Germany</i> Responsible for organisation and teaching of the sub-module under supervision of Prof Joachim Burger	2013 - 2015
Population Genetics <i>Bachelor program in Biology, Johannes Gutenberg University, Mainz, Germany</i> Teaching Assistant of Prof Joachim Burger	2012 - 2013

Acquisition record

GAČR: <i>Genomic Adaptations and Molecular Ecology of Food Production</i> <i>314,386EUR, one of four associated applicants (plus one main applicant)</i>	2018
Pool de recherche: <i>Genesis of Europa Slavica</i> <i>19,785EUR, one of two main co-applicants</i>	2018
EMBO Long-term Fellowship: <i>Characterizing the social revolution associated with the introduction of farming with ancient DNA</i> <i>122,096EUR + benefits, main and only applicant</i>	2017

Honours

Selected for Mentoring Program of Réseau romand <i>Le Réseau romand de mentoring pour femmes</i>	2019-2020
Selected for Early Career Scientist Steering Committee <i>Early Career Scientist Leadership Program, Genetics Society of America</i>	2018-2019
Selected for The GENETICS Peer Review Training Program <i>Genetics Society of America and GENETICS</i>	2017-2018
Selected for Membership of Gutenberg Academy for Young Researchers <i>Johannes Gutenberg University, Mainz, Germany</i>	2014-2016
Scholarship for 18th Summer Institute in Statistical Genetics <i>University of Washington, Seattle, USA</i>	2013
Scholarship for Exceptional Study Results for year 2010-2011 <i>Charles University, Prague, Czech Republic</i>	2011
5 Scholarships for Outstanding Work for University <i>Masaryk University, Brno, Czech Republic</i>	2008 - 2010

Notable professional contributions

Faculty Council Member (appointed to represent scientific collaborators of Faculty of Science) <i>Faculty of Science and Medicine, University of Fribourg, Switzerland</i>	since 2019
Main Organiser of EAA 2018 Session (E. Willerslev & G. Hellenthal among the speakers): Paving the way for archaeologically informed palaeo-population genetics <i>EAA 2018 Barcelona, European Association of Archaeologists</i>	2018
General Member of Early Career Scientist Steering Committee <i>Early Career Scientist Leadership Program, Genetics Society of America</i> Organiser of Professional Development Webinar Series, communication between subcommittees	2018-2019
eLife Ambassador (initiatives in reproducibility, diversity and open science) <i>Early-Career Advisory Group, eLife</i>	2018-2019

LIST OF SCIENTIFIC OUTPUT

Publications

de Bechedelièvre C, Jovanović J, **Hofmanová Z** et al. (2020) Direct insight into dietary adaptations and the individual experience of Neolithisation: comparing subsistence, provenance and ancestry of Early Neolithic humans from the Danube Gorges c. 6200–5500 cal BC. *Farmers at the Frontier. A Pan-European Perspective on Neolithisation*. Gron KJ, Sorensen L, Rowley-Conwy P eds. in press. Oxbow books.

Nováčková J, Čížková M, Mokhtar MG, Duda P, Stenzl V, Tříška P, **Hofmanová Z** et al. (2020) Subsistence strategy was the main factor driving population differentiation in the bidirectional corridor of the African Sahel. *American Journal of Physical Anthropology* 171(3):496-508.

Link V, Kousathanas A, Veeramah K, **Hofmanová Z** et al. (exp. 2020) ATLAS: Analysis tools for low-depth and ancient samples. *Bioinformatics* accepted.

Veeramah KR, Rott A, Groß M, van Dorp L, López S, Kirsanow K, Sell C, Blöcher J, Wegmann D, Link V, **Hofmanová Z** et al. (2018) Population genomic analysis of elongated skulls reveals extensive female-biased immigration in Early Medieval Bavaria. *PNAS* 115(13):3494-3499.

Unterländer M, Palstra F, Lazaridis I, Pilipenko A, **Hofmanová Z** et al. (2017) Ancestry and demography and descendants of Iron Age nomads of the Eurasian Steppe. *Nature Commun* 8:14615.

Čížková M, **Hofmanová Z** et al. (2017) Alu insertion polymorphisms in the African Sahel and the origin of Fulani pastoralists. *Annals of human biology* 44 (6), 537-545

Černý V, **Hofmanová Z** et al. (2017) Review of the population genetics of European prehistory. *Archeologické Rozhledy* 69 (3):331-360.

Hofmanová Z (2016) Palaeogenomic and Biostatistical Analysis of Ancient DNA Data from Mesolithic and Neolithic Skeletal Remains. Doctoral Thesis. Johannes Gutenberg-Universität Mainz.

Broushaki F, Thomas MG, Link V, Lopez S, van Dorp L, Kirsanow K, **Hofmanová Z** et al. (2016) Early Neolithic genomes from the eastern Fertile Crescent. *Science* 353(6298):499–503.

Hofmanová Z et al. (2016) Early farmers from across Europe directly descended from Neolithic Aegeans. *PNAS* 113(25):6886–6891.

Fernandes V, Triska P, Pereira JB, Alshamali F, Rito T, Machado A, **Fajkošová Z** et al. (2015) Genetic stratigraphy of key demographic events in Arabia. *PLoS ONE* 10(3):e0118625.

Bollongino R, Nehlich O, Richards MP, Orschiedt J, Thomas MG, Sell C, **Fajkošová Z** et al. (2013) 2000 years of parallel societies in Stone Age Central Europe. *Science* 342(6157):479–81.

Petřík J, Prokeš L, Humpola D, **Fajkošová Z** et al. (2012) Pedogeochemical investigation of the Bell Beaker Culture graves from sites Hodonice and Těšetice-Kyjovice, South Moravia. Theoretical and Methodological Considerations in Central European Neolithic Archaeology (BAR International Series 2325). ed. Kolář, J. Trampota F. (Archaeopress, Oxford), pp. 45–64.

Kuča M, Trampota F, Kazdová E, Prokeš L, Petřík J, Kolář, J, **Fajkošová Z**. (2010) Kyjovice (okr. Znojmo) Sutny. Přehled výzkumů (AÚ AV ČR Brno) 51(1-2):315–318.

Publications in revision or a late stage of preparation

Macháček J, Nedoma R, Dresler P, Schulz I, Lagonik E, Johnson SM, Kaňáková L, Slámová A, Llamas B, Wegmann D, **Hofmanová Z** (exp. 2020) Runes and Slavs: the oldest Slavic writing or an archeological testimony to the interaction between Germanic and Early Slavic peoples. *PNAS* in revision.

Hofmanová Z et al. (exp. 2020) Local complexity of Neolithisation revealed in ancient genomes from the Danube Gorges. In preparation.

Hofmanová Z et al. (exp. 2020) Ancient population genomics provide insight on emergence of Slavic occupation in Early Middle Ages. In preparation.

Invited Lectures

- | | |
|--|------|
| Neolithisation via ancient genomics: Routes and Barriers | 2019 |
| <i>Integrative Prehistory and Archaeological Science, University of Basel, Switzerland</i> | |
| 24 th Neolithic Seminar - Neolithisation Processes in Eurasia: Retrospect and Prospect | |
| Local complexity of Neolithisation | 2018 |
| <i>Zermatt, Switzerland; organized by Department of Genetics and Evolution, University of Genève</i> | |
| Mini-symposium on population genomics, aDNA and the evolution of European populations | |
| Complex interactions during Neolithisation: The case of Danube Gorges | 2018 |
| <i>Department of Archaeology, Faculty of Arts, University of Ljubljana, Slovenia</i> | |
| 24 th Neolithic Seminar - Neolithisation Processes in Eurasia: Retrospect and Prospect | |
| Analysis of ancient DNA data from Mesolithic and Neolithic skeletal remains | 2017 |
| <i>Department of Archaeology Seminar, Masaryk University Brno, Czech Republic</i> | |
| Palaeogenomic and biostatistical analysis of data from Mesolithic and Neolithic skeletal remains: Large damaged datasets | 2017 |
| <i>Department of Biology Seminar, University of Fribourg, Switzerland</i> | |
| Neolithisation from the perspective of archaeogenetics | 2016 |
| <i>Archaeological Institute of Academy of Sciences, Prague, Czech Republic</i> | |
| Biostatistical analysis of aDNA data from Mesolithic and Neolithic skeletons | 2015 |
| <i>Mark Thomas Group Seminar, UCL, London, United Kingdom</i> | |

Selected Contributed Lectures

Ancient DNA informs about cultural practices <i>biology20, Swiss Conference on Organismic Biology, Fribourg, Switzerland</i>	2020
Exposing fine-scale population differences in ancient genomes <i>EMBO/EMBL Symposium: Reconstructing the Human Past. Heidelberg, Germany</i>	2019
Ancient DNA elucidates sex-biased cultural practices through differences in population sizes and ancestries (Paper 1)	2018
Novel statistical tools bring to light complex interactions during prehistoric demographic turnovers: The case of Lepenski Vir (Paper 2) <i>EAA 2018, European Association of Archaeologists, Barcelona, Spain</i>	2018
Ancient genomic diversity reveals differences in cultural practices and cultural barriers between prehistoric farmers and hunter-gatherers in Europe <i>SMBE 2018, Society for Molecular Biology & Evolution, Yokohama, Japan</i>	2018
Early farmers from across Europe directly descended from Neolithic Aegeans <i>biology17, Swiss Conference on Organismic Biology, Bern, Switzerland</i>	2017
Filter and variant call comparison on high to low coverage ancient nuclear data <i>ISBA 2014, International Symposium on Biomolecular Archaeology, Basel, Switzerland</i>	2014

Public Outreach

Outreach event "In vivo: conciliabule biologique!" (science speed-dating with public) <i>Fribourg, Switzerland</i>	2020
Contribution to <i>iDNES</i> , Czech national online daily news <i>Prague, Czech Republic</i>	2017
Contribution and consultation to <i>Respect</i> , Czech national weekly magazine <i>Prague, Czech Republic</i>	2014 - 2016
Contribution to "Who were people from the Danube Gorges?" exhibition <i>University of Belgrade, Serbia</i> Contributed to exhibition texts on genetics. Filmed for an exhibition movie.	2015